REMARKS/ARGUMENTS

In reply to the Official Office Action of August 5, 2004, Applicants respond as follows:

Claims 1 through 105 have been rejected under 35 U.S.C. 102(a and b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over Haji, U.S. Patent No. 6,419,737. Applicants respectfully disagree. Haji relates to a cementitious matrix consisting essentially of an aluminosilicate polymer matrix comprising two major components. The first component is an alkali metal silicate aqueous solution and the second component is a powder comprising a silico-aluminous reactive raw material. The powder component can further comprise zirconium silicate flour, a bauxite component, or a chamosite component. Thus the Haji reference relates to aluminosilicate binding compositions.

Applicants' invention includes a non-silicate network former such as various acidic oxoanionic compounds including boric acid, phosphoric acid, and the like with specific examples of the same being set forth in Claim 8. The Haji reference does not teach or even suggest any non-silicate network formers.

Applicants' claims also include a reactive glass that contains a glass former and a glass network modifier. The Haji reference lacks at least the glass network modifier. The Haji reference, as a whole, relates to a composition derived from natural sources, that is various minerals obtained from the earth. The Haji patent at the bottom of Column 1 and through Column 2 set forth various compounds which are derived from the earth as by mining such as the listed raw materials of a bauxite component, a chamosite component, and the like. Such naturally occurring minerals are crystalline. In contrast thereto, Applicants' reactive glass that is decidedly different. It is not a naturally occurring mineral, but rather a synthesized glass which is generally amorphous. It is axiomatic to those skilled in the art that such differences are fundamental. Accordingly, Haji cannot teach or suggest Applicants' reactive glass component.

Considering independent Claims 1 and 2, they contain either a non-silicate network former, or a reactive glass, or both. As noted above, the Haji reference lacks any

suggestion of a non-silicate network former and a glass network modifier. Hence Claims 1 and 2 as well as the claims dependent there from are deemed to be allowable.

Independent Claim 14 relates to reactive glass. As noted above, the Haji reference is not pertinent because it relates to natural occurring minerals and does not teach or suggest any reactive glass composition or any glass network modifier. Accordingly, claims 14 through 22 are allowable.

Claims 23 through 27 relate to claim 1 and further comprise reinforcing fibers. Inasmuch as Claim 1 has been distinguished, Claims 23 through 27 are also distinguished and allowable over Haji.

Claims 28 through 39 relate to a matrix composition including a non-silicate network former, a reactive glass, or a combination thereof, and network modifiers listed such as magnesium, calcium, etc. For the reasons set forth above, it is respectfully submitted the Haji reference does not contain any non-silicate network formers, and/or a reactive glass. Hence, Claims 28 through 39 are allowable. Moreover, Haji does not teach the use of network modifiers such as magnesium or calcium.

Claims 3, 11, and 30 have been amended to further define the invention. Various structurally modifying mediums such as reinforcing fibers and fillers serve to modify the bulk matrix and composite properties as by lowering the bulk density. Thus, fibers such as carbon, graphite, etc. improve various properties as do various filler type of materials such as microspheres and other low density materials. In others words, such compounds serve to structurally modify the matrix and not merely serve as a filler.

Claims 40 through 46 generally relate to the composition of claim 1 wherein the polymer matrix is coated with a solution to enhance thermal and/or hydrolytic stability. The coating is generally a solution of phosphoric acid and/or one or more metallic salts. An analysis of the Haji patent reveals that no coating is utilized. Upon this additional basis, it is deemed that Claims 40 through 46 are allowable.

Claims 47 through 54 directly or indirectly relate back to Claim 28 and relate to the matrix being coated with a solution that enhances thermal or hydrolytic stability. Based upon the same arguments as set forth in the preceding paragraph, these claims are deemed to be allowable.

Claims 55 through 106 generally relate to an inorganic polymer matrix composition comprising a polymer matrix composition and a reinforcement that generally is treated, or contains various components thereon to improve the compatibility or interaction between the reinforcement and the matrix. Examples of various claimed treatments include chemical oxidation, thermal oxidation, electrolytic oxidation, a roughened surface, and the like. Components thereon include sizing and the like, which improve the oxophilic character of the interface. Haji does not address or teach that characteristic which is a function of the matrix and the surface chemistry of the structurally modifying medium such as a fiber reinforcement or a filler. For example, graphite, a nonpolar substrate is inherently incompatible with a very polar oxide matrix as disclosed in the present application. Haji discloses many possible reinforcements but does not address or teach the nature of the interface which will vary with each reinforcement. The present invention teaches that an oxophilic surface is required at the interface with the medium and if such a characteristic is not inherent to the medium, steps are taken to induce an oxophilic surface. In other words, Haji contains no such suggestion with regard to improved or enhanced interaction between the polymer matrix and the reinforcement medium, etc., as claimed and taught in Applicants' application such as at the bottom of page 20 through line 21 of page 21.

In view of the above amendments and arguments, a formal notice of allowance of claims 1 through 106 is earnestly solicited.

Claims 1 through 105 have also been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over all claims of Applicants' co-pending and allowed U.S. Applications bearing serial numbers 09/871,765 and 09/871,998. As suggested by the Examiner, Applicants submit herewith a Terminal Disclaimer in compliance with 37 CFR 1.321(c) to overcome the obvious-type double patenting rejection.

Respectfully submitted,

HUDAK, SHUNK & FARINE CO. LPA

By: Daniel J. Hudak
Registration No. 25,879

2020 Front Street, Suite 307
Cuyahoga Falls, OH 44221-3257
(330) 535-2220

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